

FIGURE 1

SEQ ID NO:1 Human CAMKII- α nucleic acid sequence

The sequence in bold and italic was used for transcribing the riboprobe in Example 1.

ttcaggatgg ctaccatcac ctgcacccgc ttcacggaag agtaccagct cttcgaggaa
61 ttggcaagg gacgcctctc ggtggtgcga aggtgtgtga aggtgctggc tggccaggag
121 tatgctgccca agatcatcaa cacaagaag ctgtcagcca gagaccatca gaagctggag
181 cgtgaagccc gcatctgccg cctgctgaag caccccaaca tcgtccgact acatgacagc
241 atctcagagg agggacacca ctacctgatc ttcgacctgg tcactggtgg ggaactgttt
301 gaagatatcg tggcccgaaa gtattacagt gaggcggatg ccagtcactg tatccagcag
361 atcctggagg ctgtgctgca ctgccaccag atgggggtgg tgcaccggaa cctgaagcct
421 gagaatctgt tgctggcctc caagctcaag ggtgccgcag tgaagctggc agactttggc
481 ctggccatag aggtggaggg ggagcagcag gcatggtttgg gtttgcagg gactcctgga
541 tatctctccc cagaagtgtgc gcggaaaggac ccgtacggga agcctgtggc cctgtggc
601 tgtgggtca tcctgtacat cctgctggtt gggtacccccc cggtctggga tgaggaccag
661 caccgcctgt accagcagat caaagccggc gcctatgatt tcccatcgcc ggaatgggac
721 actgtcaccc cggaagccaa ggatctgatc aataagatgc tgaccattaa cccatccaaa
781 cgcacacag ctgccgaagc ccttaagcac ccctggatct cgcaccgctc caccgtggca
841 tcctgcatgc acagacagga gaccgtggac tgcctgaaga **agttcaatgc** caggagaaaa
901 **ctgaagggag ccattctcac** **cacgtatgtgc** gccaccagga acttctccgg agggaaaggt
961 gggggaaaca agaagagcga tgggtgtgaag aaaagaaaagt ccagttccag cgttcagtta
1021 atggaatcct cagagagcac caacaccacc atcgaggatg aagacacccaa agtgcggaaa
1081 caggaaatta taaaagtgcac agagcagctg attgaagccca **taagcaatgg** aggtttttag
1141 tcctacacga agatgtgcga **cectggcatg** acagccttcg aacctgaggc cctggggaaac
1201 **ctggttgagg gcctggactt** **ccatcgattc** tattttgaaa acctgtggtc ccggAACAGC
1261 aagcccggtgc acaccaccat cctgaatccc cacatccacc tggatggcga cgagtca
1321 tgcacatcgccat acatccgcac cacgcagtc ctggacgcgtg gcggcatccc acgcaccggcc
1381 cagtcggagg agacccgtgt ctggcaccgc cgggacggca aatggcagat cgtccacttc
1441 cacagatctg gggccctc cgtcctgccc cattgaagga ccaggccagg gtcaa

FIGURE 2

SEQ ID NO:2 Human CAMKII- α Amino acid sequence

1 MATITCTRFT EYEQLFEELG KGAFSVVRRC VKVLAGQEYA AKIINTKKLS ARDHQKLERE
61 ARICRLLKHP NIVRLHDSIS EEEGHYLYIFD LVTGGELFED IVAREYYSEA DASHCIQQIL
121 EAVLHCHQMG VVHRDLKPEN LLLASKLKG A AVKLADFGLA IEVEGEQQAW FGFAGTPGYL
181 SPEVLRKDPY GKPVDLWACG VILYILLVGY PPFWDEDQHR LYQQIKAGAY DFPSPEWDTV
241 TPEAKDLINK MLTINPSKRI TAAEALKHPW ISHRSTVASC MHRQETVDCL KKFNARRKLK
301 GAILTTMLAT RNFSGGKSGG NKKSDGVKKR KSSSSVQLME SSESTNTTIE DEDTKVRKQE
361 IIKVTEQLIE AISNGGFESY TKMCDPGMTA FEPEALGNLV EGLDFHRYF ENLWSRNSKP
421 VHTTILNPHI HLMGDESACI AYIRITQYLD AGGIPRTAQ S EETRVWHRRD GK WQIVHFHR
481 SGAPSVLPH

FIGURE 3

SEQ ID NO:3: Human TBR1 Nucleic acid sequence (NCBI Accession NM 006593)

The sequence in bold and italic was used for transcribing the riboprobe in Example 1.

1 caggtgatta tcctaattaa tgtctatcta attaaattac tgtcagcagc taaccaatgg
61 caggagccgt **ttcatcggt** gcacaaggcag caagatcaaa agtgagcctt ttctgattgc
121 tgcata**gtgt** caatggcca atctcttctc ccagggaaaa aaaaaagtaa atcaaaccctt
181 tgagaagcat ttgctggttg aagtgc**tttc** tgtctagtg a ggggtctgt ggatttctag
241 tttatgataa ataggactt aaaaaccagg gacgggaggg cgagtgtca gttctagag
301 ctatgcag**ct ggagcactgc** ctttctc**ctt** ctatcatgct ctccaaagaaa tttctcaatg
361 tgagcagcag ctacccacat tcagggc**ggat** ccgagctt**gt** cttgcacgat catcccaattt
421 tctcgaccac tgacaac**ctg** gagagaagtt cacctt**ttgaa** aaaaattacc agggggatga
481 cgaatcagtc agatacagac aat**tttcc** ctgc**aa**agga ctcaccaggg gacgtccaga
541 gaagtaaact ctctc**ctgtc** ttggacgggg t**ctctgagct** tcgtcacagt ttcgatggct
601 ctgctgcaga tcgctac**ctc** ctct**ctc** agt ccagccagcc acagtc**tg**cg gccactgctc
661 ccagtgccat gttcc**ccgt** ac cccggccagc acggaccggc gcaccccgcc ttctccatcg
721 gcagccctag ccgctacatg gcccaccacc cgg**tcatc** ac caacggagcc tacaacagcc
781 tc**ctgtccaa** ctc**ctcgccg** cagggata**cc** accggcc**gg** ctaccc**ctac** ccacagc**agt**
841 acggccactc ctaccaagga g**ctccgtt** c**acc** agt**tt** ctc ctccacc**cc** ag cggggctgg
901 tgcccggcaaa agcacaggtg tac**ctgt** gca acaggccc**ct** ttggctgaaa tttcaccggc
961 accaaacgga gatgatc**atc** accaaacagg gaaggcgc**at** gttc**ctt** ttaagtttta
1021 acattt**ctgg** t**ctcgat** ccc acgg**ctc** t**att** aat**ttt** t**gtggat** t**gt** attttggc**gg**
1081 atcccaat**ca** ctggaggtt**ttt** caaggagg**ca** aatgggt**ttcc** ttgcgg**caaa** g**cg** gacac**cca**
1141 atgtg**caagg** aaat**cggg** t**at** at**gc** atc cggatt**cccc** caac**act** tgg g**ctc** a**ct** tgg
1201 tg**cgcc** aaga aat**ct** tttt ggaaaattaa aacttacgaa caacaaagga g**ctt** caa**ata**
1261 acaatgg**ca** gatgg**tggtt** ttacag**tc** t**gc** aca**ag** t**ca** ccagcccc**gc** ctg**cat** t**gg**
1321 tgg**aa** g**atg** t**gaa** c**gaggac** ggc acggagg**gac** c**t** agcc**ag** cc cggcc**gcgt** g**ca** g**acgtt**
1381 ctt**cc** t**ga** g**actc** a**gtt** c**tc** c**ccg** t**acca** g**a** a**ca** c**ggat** a**tt** a**ca** c**aca** ac
1441 tggaaaat**aga** tc**aca** acc**ct** ttt**gc** aaa**ag** gattt**cg** gga taattat**gac** acgat**ct** a**ca**
1501 c**cg** g**ctgt** g**ta** c**atgg** acc**gc** c**tg** acc**cc** c**ct** g**cc** a**ac** g**ca** c**tc** g**cc** g**gc** c**tc** t**gc** a**ca** g**at** c**g**
1561 t**gccc** ggg**gc** c**cg** ct**ac** g**cc** atgg**ccgg** ct**tt** c**ctgt** g**ca** g**gacc** g**at** t**tc** g**tg** a**gca** a**ct**
1621 acg**cca** a**agg** c**cc** g**ctt** c**cc** ac c**cg** g**gg** c**gc** ggg**cc** c**gg** g**cc** ggg**gt** acgg**acc** g**ca**
1681 g**cgtgc** g**ccg** c**ca** c**cca** a**ac** g**gg** ct**gctgt** c**cg** a**cc** g**agg** g**accc** g**gg** g**cg** g**cc** c**ct**
1741 c**gccc** g**caac** g**cg** ct**ggtt** t**gt** acg**ccgg** c**ca** a**acc** g**gg** ct**gactt** c**cg** g**gc** g**cc** c**ct**
1801 atg**acac** g**gg** c**acgg** ac**tt** c**gcgg** c**caac** g**cg** g**ccac** g**ct** g**ct** t**ttac** g**cgg** c**gg** g**cc** g**gg**
1861 g**cgtga** a**agg** c**gc** g**ccg** c**ct** g**agg** c**ctg** g**ca** g**gt** g**ca** c**ct** g**gg** c**ctc** g**gg** ct**act** a**cc**
1921 c**cgaccc** g**tc** g**gggg** c**gc** c**cc** g**ca** g**tc** c**cc** g**cc** g**at** g**ta** c**tc** g**gg** c**acc** a**ag** t**cg** g**gg** c**ct**

1981 cggtgctgcc ctgctggccc aacagcgccg cggccgcccgc ggcgcattggcc ggcccaatc
2041 cctacctggg cgaggaggcc gagggcctgg ccgcgcagcg ctgcgcgtg cgcgcggcg
2101 cgcgcgagga cgccaaagccc aaggacctgt cgatcccg ctggatcgag acgcctctt
2161 cgatcaagtc catcgactcc agcgactcgg ggatttacga gcaggccaag cggagggcgga
2221 tctcgccggc cgacacgccc gtgtccgaga gttcgcccc gctcaagagc gaggtgctgg
2281 cccagcggga ctgcgagaag aactgcgcca aggacattag cggctactat ggcttctact
2341 cgcacagcta ggccgcggccct gcccgcggc cccgcgcg gcccggaccc ccagccagcc
2401 cctcacagct cttccccagc tccgcctccc cacactcctc cttgcgcacc cactcattt
2461 atttgacctt cgatggccgt ctgcagcgaa taagtgcagg tctccgagcg tgattttAAC
2521 ctttttgca cagcagtctc tgcaatttgc tcaccgaccc tcaactttgc tgtaaacctt
2581 ttgggtttcc tacttactct tcttctgtgg agttatcctc ctacaattcc cttccccctc
2641 gtctttctct tacctcctac ttctctttct tgtaatgaaa ctcttcaccc ttaggagacc
2701 tggcagtcc tgtcaggcag cagcgattcc gacccgccaa gtctcggcct ccacattaac
2761 cataggatgt tgactctaga acctggaccc acccgcgcg tcctttctta tccccgagtg
2821 gatggatgga tggatggatg gtagggatgt taataattt agtggAACAA agcctgtgaa
2881 atgattgtac atagtgttaa tttattgtaa cgaatggcta gtttttattc tcgtcaaggc
2941 acaaaaaccag ttcatgctta acctttttt ctttccttt ctttgccttt ctttctctcc
3001 tctcataactt tctcttctct ctcttttaat tttcttgcataatattc taagaggctc
3061 tagaaacatg aaatactcag tagtgatggg tttcccaatt ctcctcaatc cgttgcata
3121 aataattact atgtgcccta atgcacacaa atagctaagg agaatccacc caaacacctt
3181 taaagg

FIGURE 4

SEQ ID NO:4 Human TBR1 Amino acid sequence

1 MQLEHCLSPS IMLSKKFLNV SSSYPHSGGS ELVLHDHPII STTDNLERSS PLKKITRGMT
61 NQSDTDNFDPD SKDSPGDVQR SKLSPVLDGV SELRHSFDGS AADRYLLSQS SQPQSAATAP
121 SAMFPYPGQH GPAHPAFSIG SPSRYMAHHP VITNGAYNSL LSNSSPQGYP TAGYPYPQQY
181 GHSYQGAPFY QFSSTQPGLV PGKAQVYLCN RPLWLKFHRH QTEMIITKQG RRMFPFLSFN
241 ISGLDPTAHY NIFVDVILAD PNHWRFQGGK WVPCGKADTN VQGNRVMHP DSPNTGAHWM
301 RQEISFGKLK LTNNKGASNN NGQMVVLQSL HKYQPRLHVV EVNEDGTEDT SQPGRVQTFT
361 FPETQFIAVT AYQNTDITQL KIDHNPFAKG FRDNYDTIYT GCDMDRLTPS PNDSPRSQIV
421 PGARYAMAGS FLQDQFVSNY AKARFHPGAG AGPGPGTDRS VPHTNGLLSP QQAEDPGAPS
481 PQRWFVTPAN NRLDFAASAY DTATDFAGNA ATLLSYAAAG VKALPLQAAG CTGRPLGYYA
541 DPSGWGARSP PQYCGTKSGS VLPCWPNSAA AAARMAGANP YLGEEAEGLA AERSPLPPGA
601 AEDAKPKDLS DSSWIETPSS IKSIDSSDSG IYEQAKRRRI SPADTPVSES SSPLKSEVLA
661 QRDCEKNCAK DISGYYGFYS HS

Figure 5

CAMKII- α mRNA Levels in 6 Layers of Dorsolateral Prefrontal Cortex
(DLPFC in the Brains of Bipolar patients and Normal Controls)

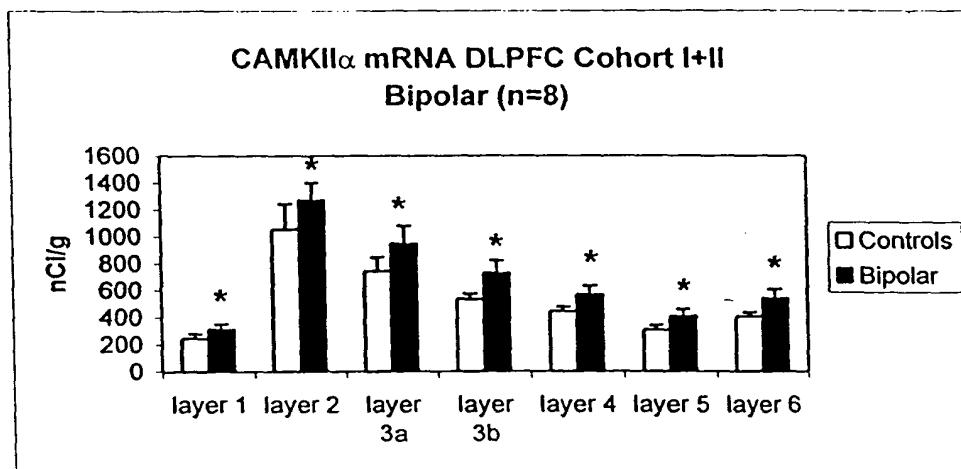


Figure 6

TBR1 mRNA Levels in 6 Layers of Dorsolateral Prefrontal Cortex (DLPFC)
in the Brains of Bipolar patients and Normal Controls

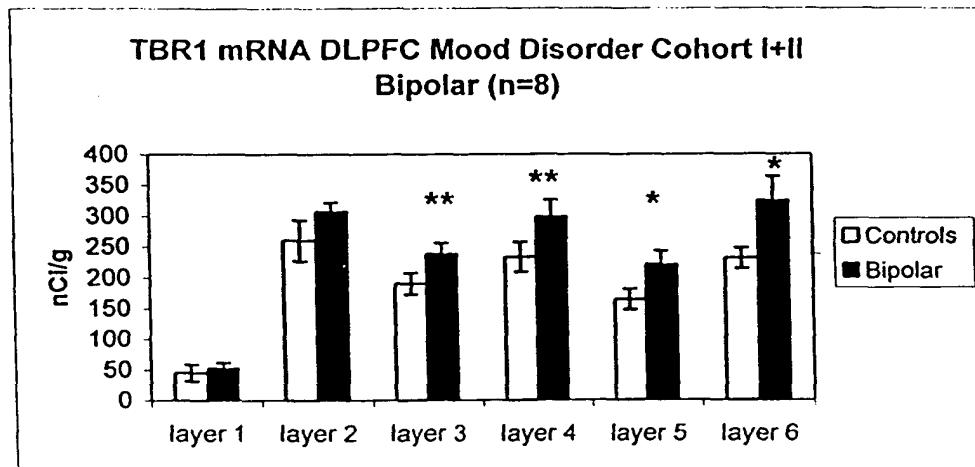


Figure 7

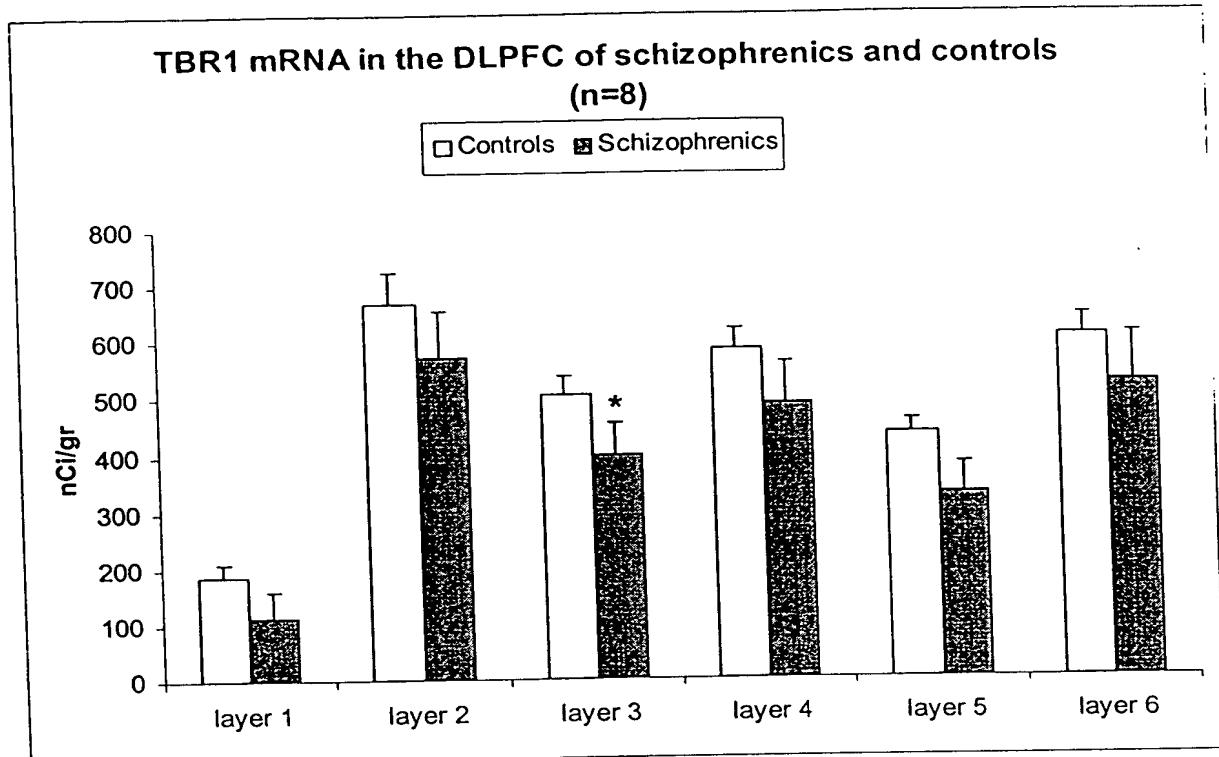


Figure 8

CAMK I nucleotide and amino acid sequence

SEQ ID NO:5

1 ggagagagcc gccgagccga gccgagcccc agctccagca agagcgcggg cgggtggccc
61 aggcacgcag cggtagggac cgccggccaca gctcggcgcc aaccaccgcg ggcctccag
121 ccagccccgc ggccggggcag ccgcaggagc cctggctgtg gtcggggggc agtggccat
181 gctggggca gtggaaaggcc ccaggtggaa gcaggcggag gacatttagag acatctacga
241 cttccgagat gttctggca cgggggcctt ctcggaggtg atcctggcag aagataagag
301 gacgcagaag ctggtggcca tcaaattgtat tgccaaggag gccctggagg gcaagaagg
361 cagcatggag aatgagattt ctgtcctgca caagatcaag caccacaaca ttgttagccct
421 ggatgacatc tatgagatgt gggccaccc ctacccatc atgcagctgg tgtcgggtgg
481 ggagctctt gaccgtattt tgaaaaaagg cttctacacg gagcgggacg ccagccgcct
541 catttccag gtgctggatg ctgtgaaata cctgcattgc ctggcattt tacaccggga
601 tctcaagcca gagaatctgc tttactacag cctggatgaa gactccaaa tcatgatctc
661 cgactttggc ctctccaaaga tggaggaccc gggcagtgtg ctctccaccg cctgtggaaac
721 tccgggatac gtggccctg aagtcttgc ccagaagccc tacagcaagg ctgtggattt
781 ctggtccata ggtgtcatcg cctacatctt gtcctgcgtt taccctccct tctatgacga
841 gaatgtatgcc aaactctttt aacagatttt gaaggccgag tacgagttt actctccctt
901 ctgggacgac atctctgact ctgccaaaga tttcatccgg cacttgcgtt agaaggaccc
961 agagaaaaga ttcacctgtg agcaggcctt gcagcaccca tggattgcag gagataacagc
1021 tctagataag aatatccacc agtcggtgag tgagcagatc aagaagaact ttgccaagag
1081 caagtggaaag caagccttca atgccacggc tttgggtgggg cacatgagga aactgcagct
1141 gggcaccagc caggaggggc aggggcagac ggcgcacccat ggggagctgc tgacaccagt
1201 ggctgggggg ccggcagctg gctgttgcgtg tcgagactgc tgctgggagc cgggcacaga
1261 actgtcccccc acactggccc accagctcta gggcccttgc cctcgggtca tgatctctg
1321 cgtggggaggg ctggggca gcctgctccc ctccctccct tgaaccggga gtttctctgc
1381 cctgtccctt cctcacctgc ttccctacca ctccctactg cattttccat acaaattttt
1441 ctattttatt gttcccttctt gtaataaagg gaagataaaa caaaaaaaaaaa aaaaaaaaaaa
1501 a

SEQ ID NO:6

MLGAVEGPRWKQAEDIRDYDFRDVLGTGAFSEVILAEDKRTQKLVAIKCIAKEALEGKEGSMENEIAVLHKIKHPN
IVALDDIYESGGHLYLIMQLVSGGELFDRIVEKGFYTERDASRLIFQVLDALKYLHDLGIVHRDLKPENLLYYSLDE
DSKIMISDFGLSKMEDPGSVLSTACGTPGYVAPEVLAQKPYSKAVDCWSIGVIAYILLCGYPPFYDENDAKLFEQIL
KAEYEFDSPYWDDISDSAKDFIRHLMEKDPEKRTCEQALQHPWIAGDTALDKNIHQSVSEQIKKNFAKSKWKQAFN
ATAVVRHMRKLQLGTSQEGQQTASHGELLTPVAGGPAAGCCCRDCCVEPGTELSPTLPHQL"